

# Colorado Basin Outlook Report February 1, 2012



# Basin Outlook Reports and Federal - State - Private Cooperative Snow Surveys

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## *How forecasts are made*

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

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# Colorado

## Water Supply Outlook Report

### February 1, 2012

#### Summary

La Nina conditions returned to Colorado in January with multiple storm systems hitting western Colorado and dry conditions prevailing in southern and southeastern Colorado. Increased snowpack totals across western Colorado were offset by significant decreases in the southern basins. Current snow surveys reveal that statewide snowpack percentages have essentially remained constant compared to last month's readings. Below average conditions were reported in all major river basins in the state. Current streamflow forecasts reflect the below average snowpack conditions throughout the state. The best prospects for near average streamflow this spring and summer are in the Boulder Creek and St. Vrain drainages of the South Platte watershed. Water users in most northwest basins should start planning for below average surface water supplies this season. Fortunately reservoir storage volumes across the state and especially in the northwest basins are above average which should help ease potential shortages this season.

#### Snowpack

Snowfall across most of Colorado was almost nonexistent the first two weeks of January. During this time snowpack percentages were decreasing daily as the gap between current conditions and long-term averages widened. By the January 16<sup>th</sup> the statewide snowpack, derived from SNOTEL data, had decreased to just 63 percent of average, a significant reduction from conditions reported at SNOTEL sites at the start of January. The situation began to improve in mid January when storm systems brought much needed moisture to the state. Basins west of the Continental Divide showed the most improvement from these storms; the Gunnison River basin received nearly as much snowfall in the last two weeks of January as it normally receives over the entire month! The San Juan, Animas, Dolores, San Miguel and Colorado basins each received above average snowfall from January 16<sup>th</sup> to January 31<sup>st</sup> as well. All other basins returned to average snow accumulation patterns in the last two weeks of January. Unfortunately these storms were not enough to boost snowpack's across the state to average conditions for this time of year. While still below average, improvements were made to snowpack totals in the Gunnison and Colorado basins. Snowpack percentages decreased in all other major basins in Colorado with the exception of the combined San Juan, Animas, Dolores, and San Miguel basins which remained at 73 percent of average. The lowest snowpack percentages continue to be reported in the Yampa and White River basins which was only at 60 percent of average on February 1. Statewide the snowpack was reported to be 72 percent of average, up 1 percentage point from last month's measurements.

#### Precipitation

Precipitation patterns began to reflect a more typical La Nina weather pattern in January. Near average monthly totals were recorded in the Gunnison and Colorado basins and the South Platte and combined Yampa, White and North Platte basins reported higher percents of average than last month. However, the Yampa, White and North Platte basins was still only reported 69 percent of average precipitation totals in January; these basins typically see above average precipitation during a La Nina year. January was the driest month so far for the Arkansas and Upper Rio Grande basins, reporting just 56 and 64 percent of average respectively. Year to date precipitation measurements across the state are still benefiting from well above average conditions earlier this season. Totals range from 102 percent of average in the Upper Rio Grande to 74 percent in the Yampa, White and North Platte. Statewide total precipitation for the water year is 84 percent of average and only 70 percent of last year's totals at this same time.

## Reservoir Storage

A more positive report concerning 2012 water supply conditions is the state's reservoir storage. Storage volumes continue to track at slightly above average levels with statewide storage at 106 percent of average. Above average storage volumes were reported at the end of January in the Gunnison, Colorado, South Platte, Yampa, White, and combined San Juan, Animas, Dolores, and San Miguel basins. The only basin to report significantly below average storage amounts is the Upper Rio Grande whose storage amounts are just 66 percent of average. The Arkansas basin is reporting near average storage volumes at 94 percent of average. Fortunately for water users, basins reporting the lowest snow accumulation this season are also reporting the highest storage volumes. This should help alleviate possible late summer water supply shortages in the basins across northern and west central Colorado. Storage volumes in most basins are above where they were this time last year.

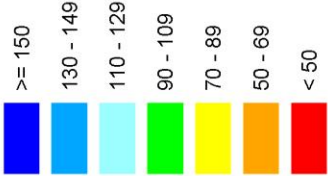
## Streamflow

Streamflow forecasts across the state reflect the below average snowpack conditions measured on February 1. All forecasts across Colorado are predicting below average seasonal volumes this water year. The Boulder Creek and St. Vrain drainages in the South Platte basin currently have the best outlook for spring and summer runoff yet are still forecast to see slightly below average volumes. The lowest percents of average in the current forecasts occur in the Yampa, White and North Platte basins. Forecasts in these basins are less than 72 percent of average and as low as 57 percent of average, with the exception of the Laramie River forecast which is calling for spring flows at 85 percent of average. Forecasts for the Colorado and Gunnison basins do not differ much from those issued last month; expected streamflow volumes generally range from 65 to 75 percent of average in these basins. As a result of the drier conditions in January, current runoff forecasts in the Arkansas and Upper Rio Grande basins have decreased significantly from last month's predictions. At this point in the season the mountains have typically accumulated 60 percent of their annual snowpack in Colorado. The potential for recovering to average conditions at this point in the season is not promising, but it is possible if we see spring conditions similar to last year.

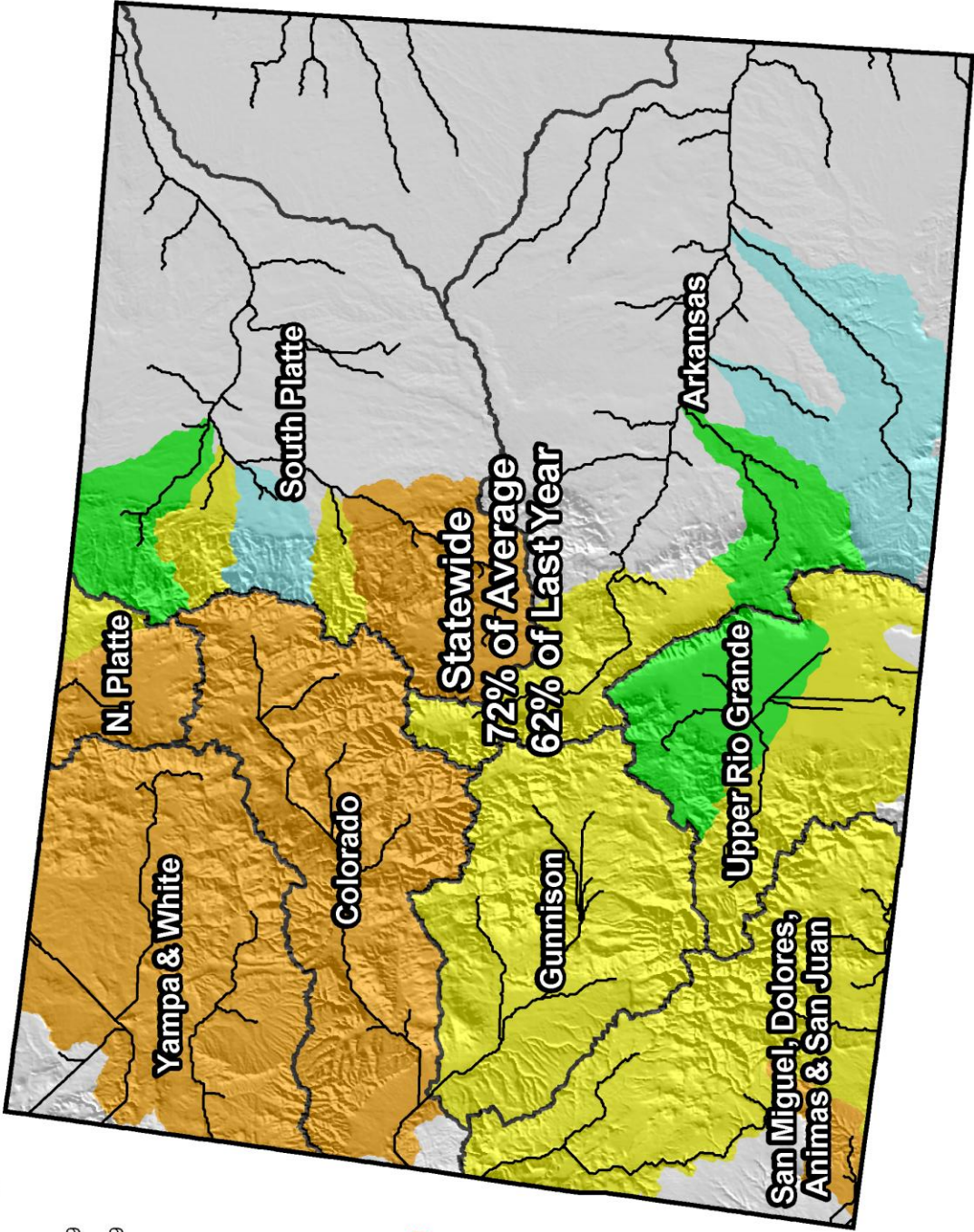


# Colorado Snowpack Map

Percent of Average



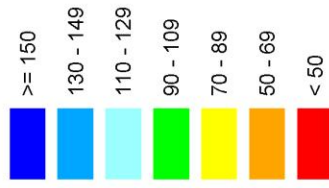
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Subject to Revision*



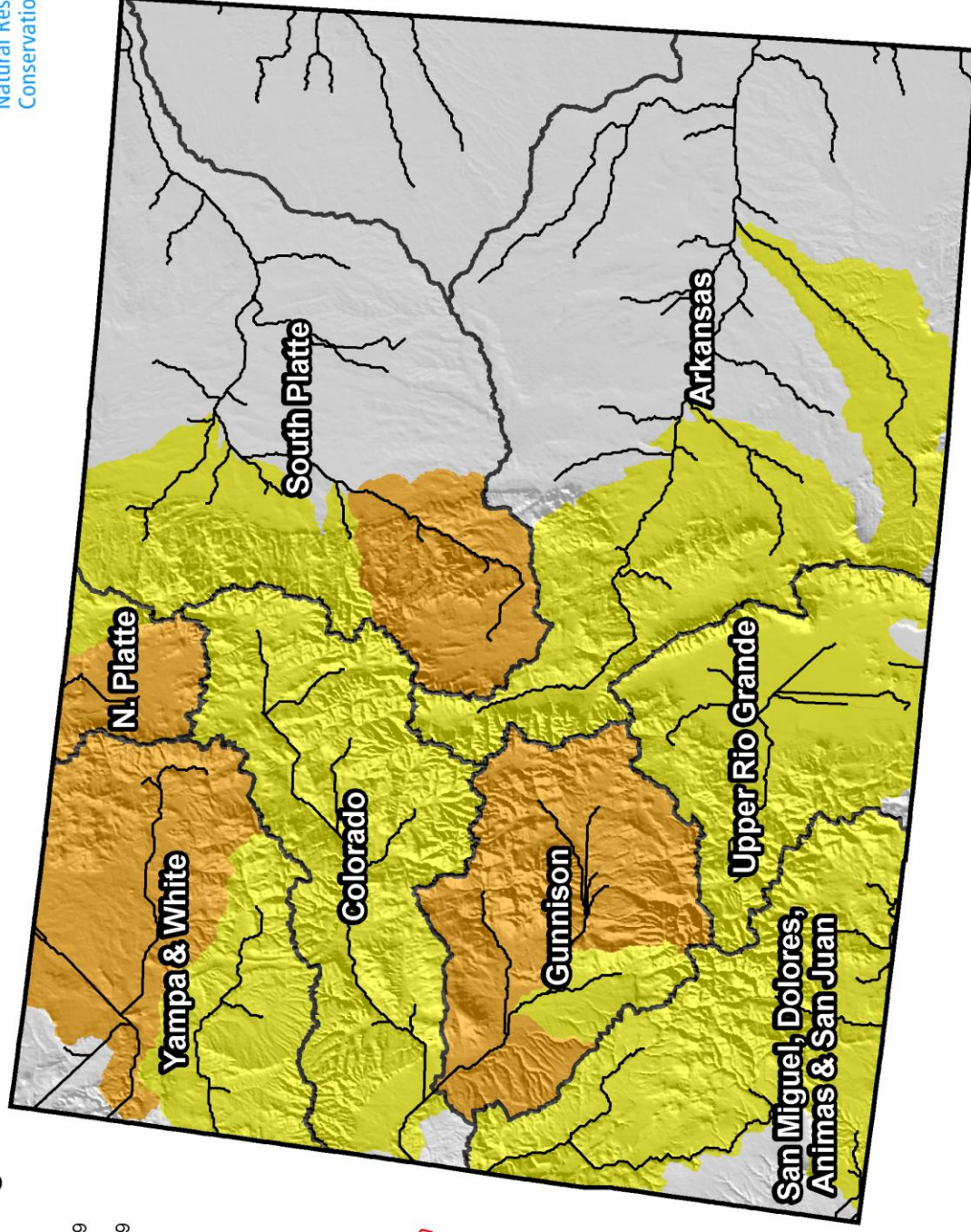
Current as of February 1, 2012

# Colorado Streamflow Forecast Map

Percent of Average



*Provisional Data  
Subject to Revision*

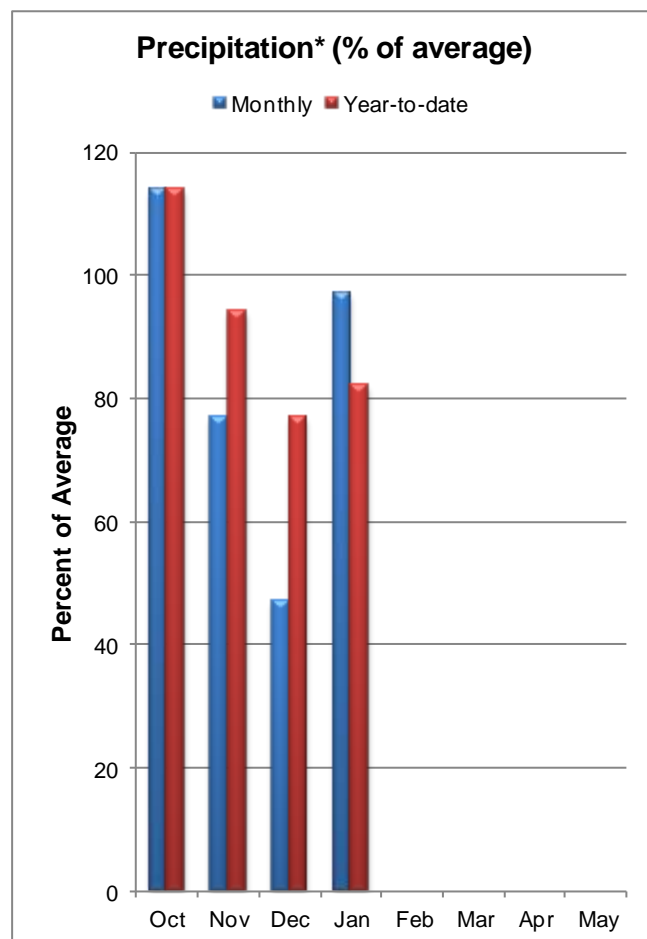
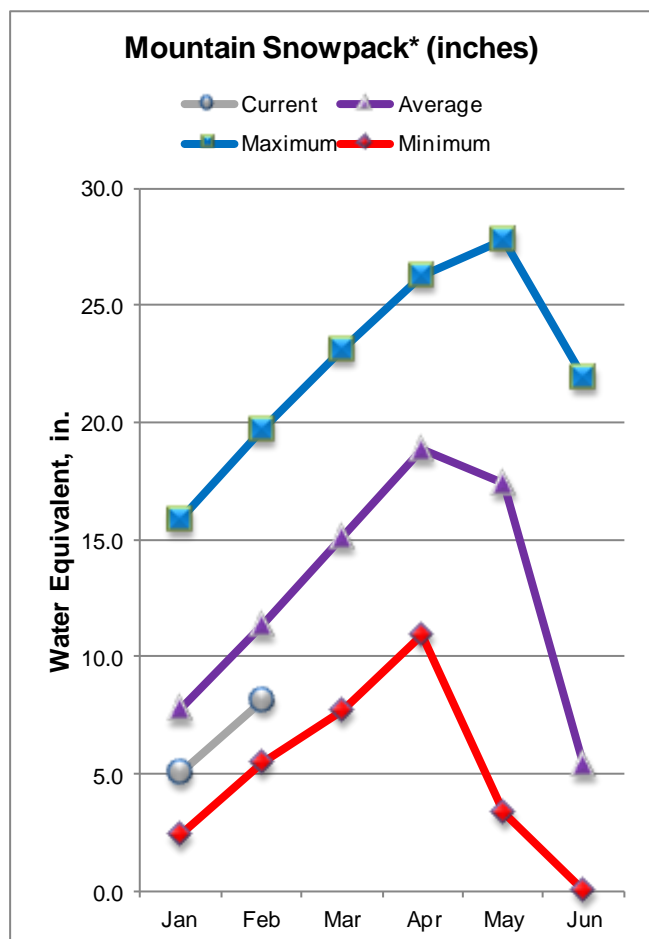


Current as of February 1, 2012



# GUNNISON RIVER BASIN

## as of February 1, 2012



\*Based on selected stations

Storm systems in mid January brought much needed snowfall to the Gunnison River basin. SNOTEL data show that the basin received snowfall amounts during the last two weeks of January that were nearly equivalent to snowfall totals typically recorded over the entire month. Unfortunately the storms were not enough to boost the snowpack to average conditions; in fact the basin would have needed almost double the snowfall that was actually measured in January to make up the difference. On February 1 the snowpack had increased to 72 percent of average from 63 percent of average measured on January 1. Sub basin are all reporting below normal conditions, ranging from 77 percent of average in the Uncompahgre basin to 71 percent of average reported in the Upper Gunnison.

Mountain precipitation in the Gunnison River basin was near average for January, this boosted the year to date precipitation from 77 percent of average reported on January 1, to 82 percent of average as of February 1. Reservoir storage in the basin remains in good condition at 107 percent of average and 68 percent of capacity. Current water supply forecasts did not vary much from those issued last month. Water users can continue to expect below average runoff volumes at all forecast points in the basin. April - July predicted streamflow volumes range from 56 percent of average at Tomichi Creek at Gunnison to 78 percent of average for Ridgway Reservoir Inflow.

GUNNISON RIVER BASIN  
Streamflow Forecasts - February 1, 2012

		<<===== Drier ===== Future Conditions ===== Wetter =====>>						
Forecast Point	Forecast Period	=====		Chance Of Exceeding *		=====		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Taylor Park Reservoir Inflow (2)	APR-JUL	47	63	76	74	90	112	103
Slate R nr Crested Butte	APR-JUL	47	56	62	70	69	79	89
East R at Almont	APR-JUL	80	106	125	65	146	179	192
Gunnison R near Gunnison (2)	APR-JUL	153	210	250	64	295	370	390
Tomichi Ck at Sargents	APR-JUL	12.4	18.2	23	72	29	38	32
Cochetopa Ck bl Rock Ck nr Parlin	APR-JUL	4.8	7.8	10.5	61	13.7	19.6	17.3
Tomichi Ck at Gunnison	APR-JUL	17.7	32	45	56	61	92	81
Lake Fk at Gateview	APR-JUL	59	76	89	71	103	125	126
Blue Mesa Reservoir Inflow (2)	APR-JUL	250	360	450	63	545	705	720
Paonia Reservoir Inflow (2)	MAR-JUN	31	50	65	65	82	111	100
	APR-JUL	30	50	66	65	85	117	102
NF Gunnison R nr Somerset (2)	APR-JUL	119	165	200	66	240	300	305
Surface Ck at Cedaredge	APR-JUL	7.4	10.0	12.0	70	14.3	18.2	17.1
Ridgway Reservoir Inflow (2)	APR-JUL	50	67	80	78	94	118	102
Uncompahgre R at Colona (2)	APR-JUL	50	78	100	72	125	167	139
Gunnison R nr Grand Junction (2)	APR-JUL	510	775	990	64	1230	1630	1560

GUNNISON RIVER BASIN Reservoir Storage (1000 AF) - End of January					GUNNISON RIVER BASIN Watershed Snowpack Analysis - February 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
BLUE MESA	830.0	545.1	552.4	493.3	UPPER GUNNISON BASIN	15	55	71
CRAWFORD	14.0	5.9	6.2	8.2	SURFACE CREEK BASIN	3	50	72
FRUITGROWERS	3.6	3.5	2.8	3.4	UNCOMPAHGRE BASIN	4	65	77
FRUITLAND	9.2	2.2	1.4	1.8	TOTAL GUNNISON RIVER BASI	19	57	72
MORROW POINT	121.0	113.5	112.0	113.4				
PAONIA	15.4	0.4	0.6	4.7				
RIDGWAY	83.0	68.3	67.4	60.2				
TAYLOR PARK	106.0	65.8	74.3	66.7				

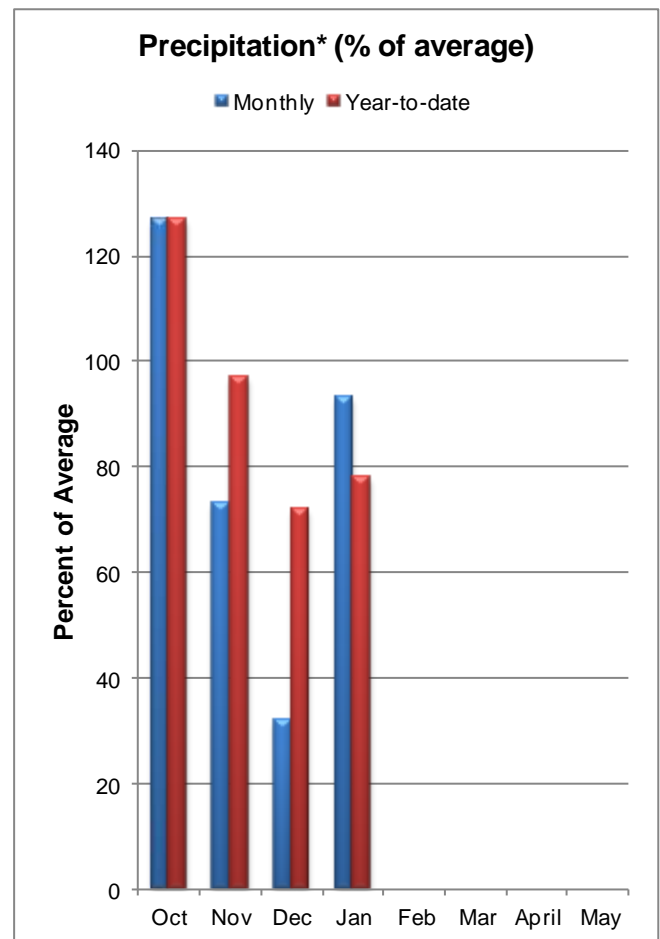
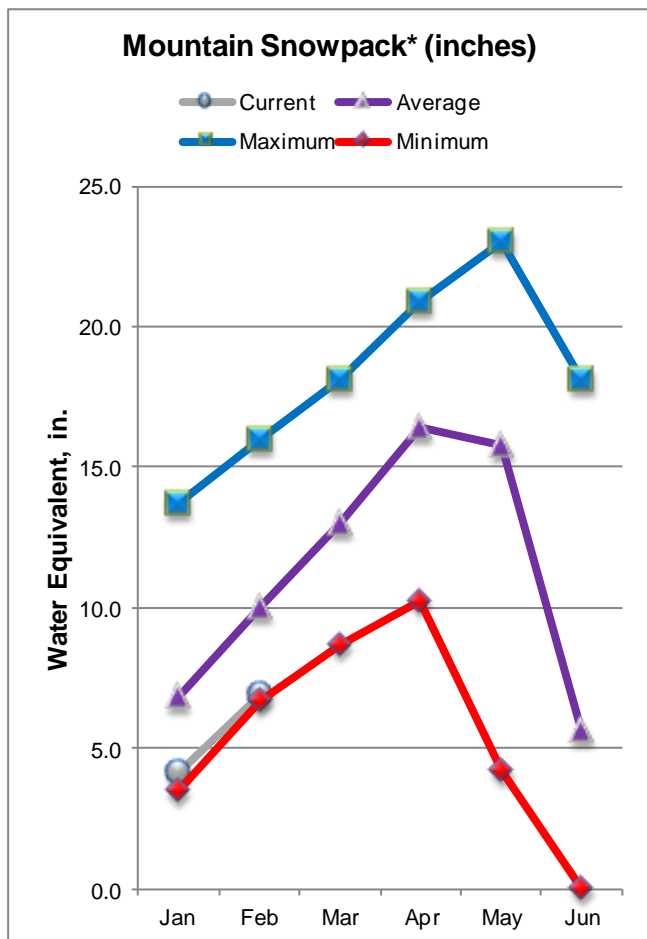
\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.
- (3) - Median value used in place of average.



# UPPER COLORADO RIVER BASIN as of February 1, 2012



\*Based on selected stations

A southern shift in the jet streams brought a welcome increase to snowpack percentages in the Upper Colorado basin in mid January. Extremely dry conditions throughout December and early January left the snowpack at 58 percent of average on January 16, according to preliminary SNOTEL data. As of February 1, snow surveys reported the snowpack at 69 percent of average, an improvement but still well below average and just 51 percent of the snowpack measured last year at this time. This is the third lowest February 1 snowpack recorded in forty five years. The most recent comparable year was 70 percent of average recorded on February 1, 2002. Snowpack's in the sub basins are all below average as well ranging from 68 percent of average in the Williams Fork Drainage and Upper Colorado basin to 82 percent of average in the Willow Creek Drainage.

Precipitation measured in January was near normal for the basin at 90 percent of average. This provided a slight boost to total water year precipitation from 72 percent of average recorded at the end of December to 77 percent of average at the end of January. Reservoir storage volumes in the basin remain high at 113 percent of average. Current predicted seasonal streamflow volumes do not differ much from those issued last month. On the upper end Williams Fork Reservoir Inflow is forecast to be 84 percent of average; conversely Muddy Creek below Wolford Mtn Reservoir is expected to flow at 63 percent of average.

UPPER COLORADO RIVER BASIN  
Streamflow Forecasts - February 1, 2012

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Lake Granby Inflow (2)	APR-JUL	120	154	180	80	205	250	225
Willow Ck Reservoir Inflow (2)	APR-JUL	19.0	28	35	69	43	56	51
Williams Fk Reservoir Inflow (2)	APR-JUL	52	68	80	84	93	114	95
Dillon Reservoir Inflow (2)	APR-JUL	85	113	135	81	159	197	167
Green Mountain Reservoir Inflow (2)	APR-JUL	141	189	225	80	265	330	280
Muddy Ck bl Wolford Mtn Resv (2)	APR-JUL	19.6	30	38	63	47	62	60
Eagle R bl Gypsum (2)	APR-JUL	148	205	245	73	290	365	335
Colorado R nr Dotsero (2)	APR-JUL	660	900	1090	76	1300	1630	1440
Ruedi Reservoir Inflow (2)	APR-JUL	62	84	100	71	118	146	141
Roaring Fk at Glenwood Springs (2)	APR-JUL	340	440	520	73	605	740	710
Colorado R nr Cameo (2)	APR-JUL	1070	1450	1750	72	2070	2600	2420

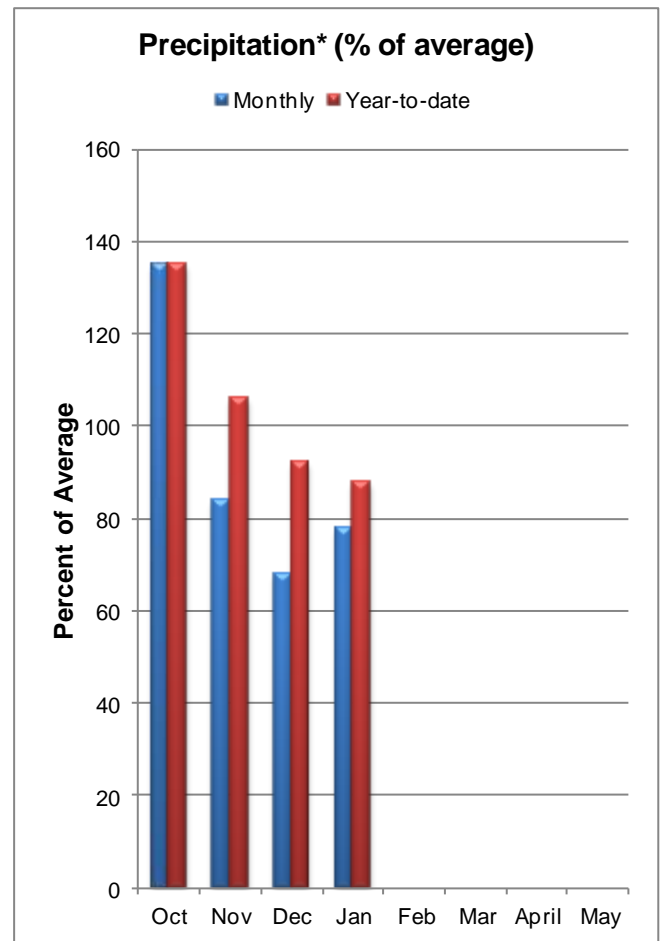
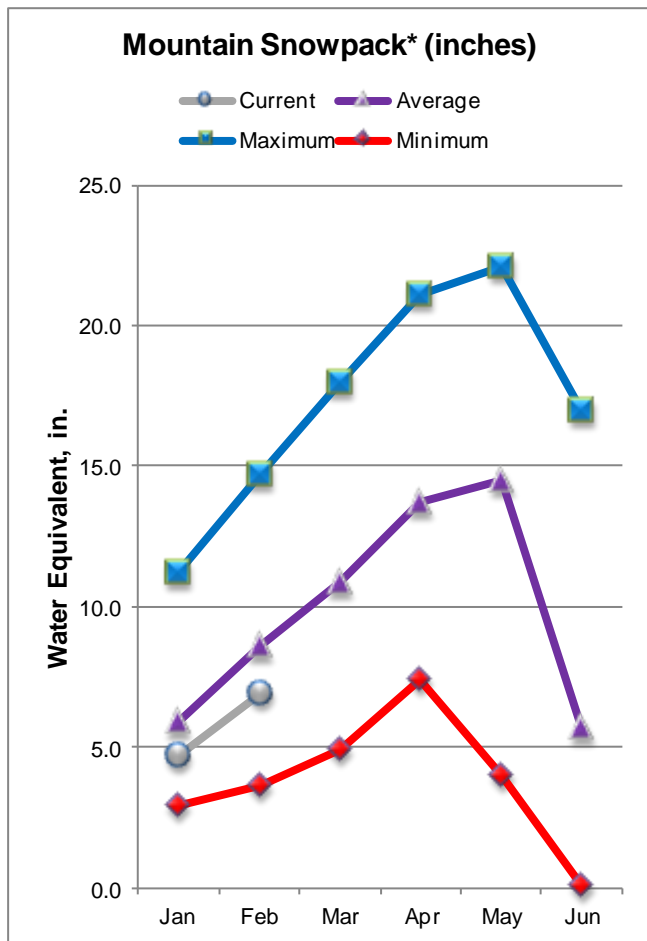
UPPER COLORADO RIVER BASIN Reservoir Storage (1000 AF) - End of January					UPPER COLORADO RIVER BASIN Watershed Snowpack Analysis - February 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
DILLON	254.0	242.7	220.9	221.3	BLUE RIVER BASIN	9	47	69
LAKE GRANBY	465.6	370.5	376.7	300.7	UPPER COLORADO RIVER BASI	36	51	68
GREEN MOUNTAIN	146.8	80.4	70.1	80.3	MUDDY CREEK BASIN	4	58	78
HOMESTAKE	43.0	8.2	37.4	27.7	PLATEAU CREEK BASIN	3	50	72
RUEDI	102.0	76.1	71.9	73.7	ROARING FORK BASIN	8	53	69
VEGA	32.9	17.0	12.6	11.6	WILLIAMS FORK BASIN	4	53	68
WILLIAMS FORK	97.0	80.1	80.7	59.5	WILLOW CREEK BASIN	4	56	82
WILLOW CREEK	9.1	7.1	7.5	6.4	TOTAL COLORADO RIVER BASI	47	51	69

\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.
- (3) - Median value used in place of average.

# SOUTH PLATTE RIVER BASIN as of February 1, 2012



\*Based on selected stations

The snowpack within the South Platte basin recorded 80 percent of average as of February 1. The basin has a good degree of variability between its sub basins. The Cache la Poudre and the St. Vrain measured 90 and 88 percent of average respectively, while the Big Thompson reported 75 percent of average and the Upper South Platte was at only 68 percent of average. While the overall snowpack in the South Platte basin is below average, we have reason to be optimistic. The early February storm we are experiencing has exceeded average snowfall amounts for the first week of February. January precipitation totals in the South Platte basin were 79 percent of average, while the year to date precipitation was 88 percent of average as of February 1. The year to date percentage is still weighted by above average precipitation in October. Based on data from the 33 reservoirs reported on in the South Platte basin, storage levels were at 109 percent of average and 82 percent of capacity at the end of January. At this time last year the raw storage was 822,000 acre-feet compared to 908,000 acre-feet reported this year. Current streamflow forecasts for the South Platte basin, project April - July flows in the majority of the basin to be between 67 to 78 percent of average. There are a few notable exceptions; St. Vrain Creek at Lyons is forecast to have flows that will achieve 89 percent of average and Boulder Creek near Orodell and South Boulder Creek near Eldorado Springs are expected to reach 90 to 88 percent of average respectively.

SOUTH PLATTE RIVER BASIN  
Streamflow Forecasts - February 1, 2012

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Antero Reservoir Inflow (2)	APR-JUL	6.0	9.1	12.1	72	16.0	24	16.8
	APR-SEP	7.4	11.5	15.4	70	21	32	22
Spinney Mountain Res Inflow (2)	APR-JUL	18.8	29	38	68	50	77	56
	APR-SEP	23	35	47	68	63	98	69
Elevenmile Canyon Res Inflow (2)	APR-JUL	18.6	29	39	67	53	82	58
	APR-SEP	22	36	49	68	67	108	72
Cheesman Lake Inflow (2)	APR-JUL	36	57	78	68	106	167	114
	APR-SEP	44	69	95	68	130	205	140
South Platte R at South Platte (2)	APR-JUL	61	100	140	68	197	325	205
	APR-SEP	74	121	170	67	240	395	255
Bear Ck ab Evergreen	APR-JUL	6.1	10.0	14.1	73	19.8	33	19.3
	APR-SEP	8.7	13.9	19.1	76	26	42	25
Bear Ck at Morrison	APR-JUL	6.3	11.4	17.0	68	25	46	25
	APR-SEP	8.5	15.0	22	71	32	57	31
Clear Ck at Golden	APR-JUL	54	71	83	76	95	112	110
	APR-SEP	65	86	101	75	116	137	134
St. Vrain Ck at Lyons (2)	APR-JUL	63	75	84	89	93	105	94
	APR-SEP	73	88	98	90	108	123	109
Boulder Ck nr Orodell (2)	APR-JUL	36	43	47	90	51	58	52
	APR-SEP	41	49	54	90	59	67	60
S Boulder Ck nr Eldorado Springs (2)	APR-JUL	28	33	36	88	39	44	41
	APR-SEP	29	35	39	85	43	49	46
Big Thompson R at Canyon Mouth (2)	APR-JUL	50	65	75	76	85	100	99
	APR-SEP	62	80	92	77	104	122	119
Cache La Poudre at Canyon Mouth (2)	APR-JUL	113	159	190	78	220	265	245
	APR-SEP	124	175	210	76	245	295	275

SOUTH PLATTE RIVER BASIN  
Reservoir Storage (1000 AF) - End of January

SOUTH PLATTE RIVER BASIN  
Watershed Snowpack Analysis - February 1, 2012

Reservoir	Usable Capacity	*** This Year	Usable Last Year	Storage Avg	Watershed	Number of Data Sites	This Year as % of Last Yr	% of Average
ANTERO	19.9	15.9	20.0	16.4	BIG THOMPSON BASIN	7	55	75
BARR LAKE	30.1	26.7	19.5	24.0	BOULDER CREEK BASIN	5	84	87
BLACK HOLLOW	6.5	3.8	2.8	3.9	CACHE LA POUDE BASIN	8	64	90
BOYD LAKE	48.4	40.7	36.8	32.1	CLEAR CREEK BASIN	4	58	84
BUTTON ROCK/RALPH PRICE	16.2	14.0	14.1	13.0	SAINT VRAIN BASIN	4	74	88
CACHE LA POUDE	10.1	10.3	8.6	7.2	UPPER SOUTH PLATTE BASIN	16	72	67
CARTER	108.9	58.8	53.6	84.6	TOTAL SOUTH PLATTE BASIN	44	66	80
CHAMBERS LAKE	8.8	6.3	3.6	3.0				
CHEESMAN	79.0	72.9	75.1	59.7				
COBB LAKE	22.3	19.4	20.2	13.9				
ELEVEN MILE	98.0	100.1	100.5	95.9				
EMPIRE	36.5	34.6	35.8	22.8				
FOSSIL CREEK	11.1	10.5	5.8	6.8				
GROSS	41.8	26.7	25.0	26.0				
HALLIGAN	6.4	5.0	5.2	4.3				
HORSECREEK	14.7	11.4	4.4	11.6				
HORSETOOTH	149.7	120.4	85.4	99.0				
JACKSON	26.1	21.7	24.5	26.1				
JULESBURG	20.5	17.4	16.5	18.8				
LAKE LOVELAND	10.3	9.2	7.3	8.7				
LONE TREE	8.7	6.6	6.4	6.4				
MARIANO	5.4	3.2	3.0	4.2				
MARSHALL	10.0	7.3	3.9	5.1				
MARSTON	13.0	5.7	2.7	12.8				
MILTON	23.5	20.0	19.8	15.5				
POINT OF ROCKS	70.6	65.2	60.8	57.0				
PREWITT	28.2	19.7	22.3	19.3				
RIVERSIDE	55.8	44.6	42.1	41.7				
SPINNEY MOUNTAIN	49.0	43.4	34.7	33.3				
STANDLEY	42.0	36.5	33.2	33.1				
TERRY LAKE	8.0	6.0	5.3	5.3				
UNION	13.0	12.3	11.8	10.6				
WINDSOR	15.2	11.3	11.5	10.8				

\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

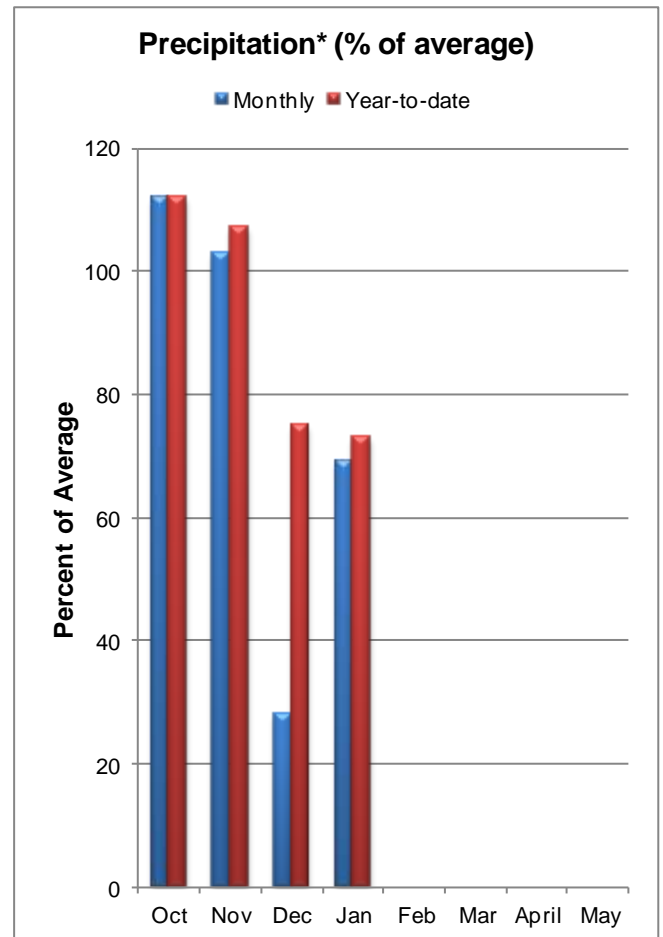
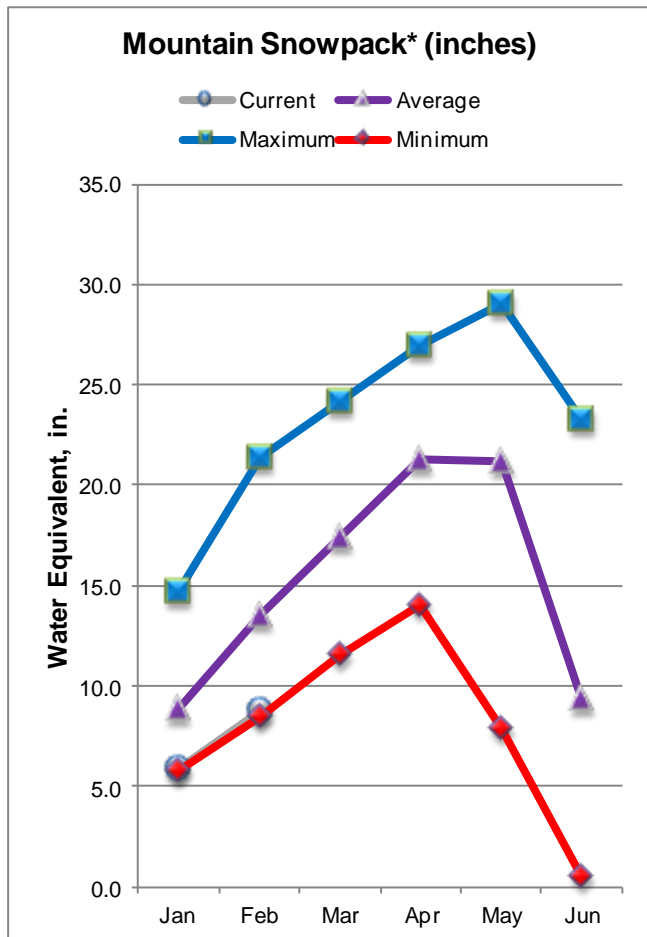
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(3) - Median value used in place of average.



# YAMPA, WHITE, NORTH PLATTE AND LARAMIE RIVER BASINS as of February 1, 2012



\*Based on selected stations

The Yampa, White, North Platte and Laramie River basins did not benefit much from the mid to late January storms that hit much of western Colorado. In the past month these basins received just 63 percent of their average January snowfall. On February 1, the total snowpack was measured at 65 percent of average, down 1 percentage point from last month and the lowest measured in the state. Based on historical SNOTEL data there is a less than 10 percent chance that the snowpack's in these basins will recover to average conditions by the end of the season. A closer look reveals that the Yampa and White River basins are fairing a bit worse than the combined basins. These basins measured just 60 percent of average on February 1 while the North Platte and Little Snake basins reported 69 and 67 percent of average respectively. Mountain precipitation this January was 69 percent of average. Total precipitation for the water year fell slightly to 74 percent of average after two consecutive months of below average precipitation. On a more positive note, reservoir storage volumes remain high at 120 percent of average. Given the dry conditions so far this season it should not be surprising that forecasts are down somewhat from those issued last month. April - July runoff is expected to be well below average at all forecast points except for the Laramie River nr Woods which is forecast to be 85 percent of average. Elsewhere volumes range from 57 percent of average for the North Platte near Northgate to 72 percent of average at the Elk River near Milner.

YAMPA, WHITE, AND NORTH PLATTE RIVER BASINS  
Streamflow Forecasts - February 1, 2012

		<<===== Drier ===== Future Conditions ===== Wetter =====>>							
Forecast Point	Forecast Period	Chance Of Exceeding *						30-Yr Avg. (1000AF)	
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)		
North Platte R nr Northgate	APR-JUL	55	76	139	57	186	255	245	
	APR-SEP	61	83	152	56	205	280	270	
Laramie R nr Woods	APR-JUL	66	89	105	85	121	144	123	
	APR-SEP	73	98	115	85	132	157	135	
Yampa R ab Stagecoach Reservoir (2)	APR-JUL	8.4	12.5	16.0	70	20	27	23	
Yampa R at Steamboat Springs (2)	APR-JUL	123	156	180	64	205	250	280	
Elk R nr Milner	APR-JUL	167	205	235	72	265	315	325	
Elkhead Ck ab Long Gulch nr Hayden	APR-JUL	19.9	34	45	63	58	80	71	
Yampa R nr Maybell (2)	APR-JUL	365	515	635	64	765	985	990	
Little Snake R nr Slater (2)	APR-JUL	73	94	110	69	127	155	159	
Little Snake R nr Savery (2)	APR-JUL	139	190	230	70	275	345	330	
Little Snake R nr Lily (2)	APR-JUL	130	185	240	66	300	370	365	
White R nr Meeker	APR-JUL	135	178	210	72	245	300	290	

YAMPA, WHITE, AND NORTH PLATTE RIVER BASINS  
Reservoir Storage (1000 AF) - End of January

YAMPA, WHITE, AND NORTH PLATTE RIVER BASINS  
Watershed Snowpack Analysis - February 1, 2012

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
STAGECOACH	36.4	31.1	22.3	25.1	LARAMIE RIVER BASIN	3	70	87
YAMCOLO	8.7	6.6	6.8	6.2	NORTH PLATTE RIVER BASIN	11	49	66
					TOTAL NORTH PLATTE BASIN	13	52	69
					ELK RIVER BASIN	2	45	58
					YAMPA RIVER BASIN	12	46	60
					WHITE RIVER BASIN	6	52	60
					TOTAL YAMPA AND WHITE RIV	17	48	60
					LITTLE SNAKE RIVER BASIN	8	54	67
					TOTAL YAMPA, WHITE AND NO	35	51	65

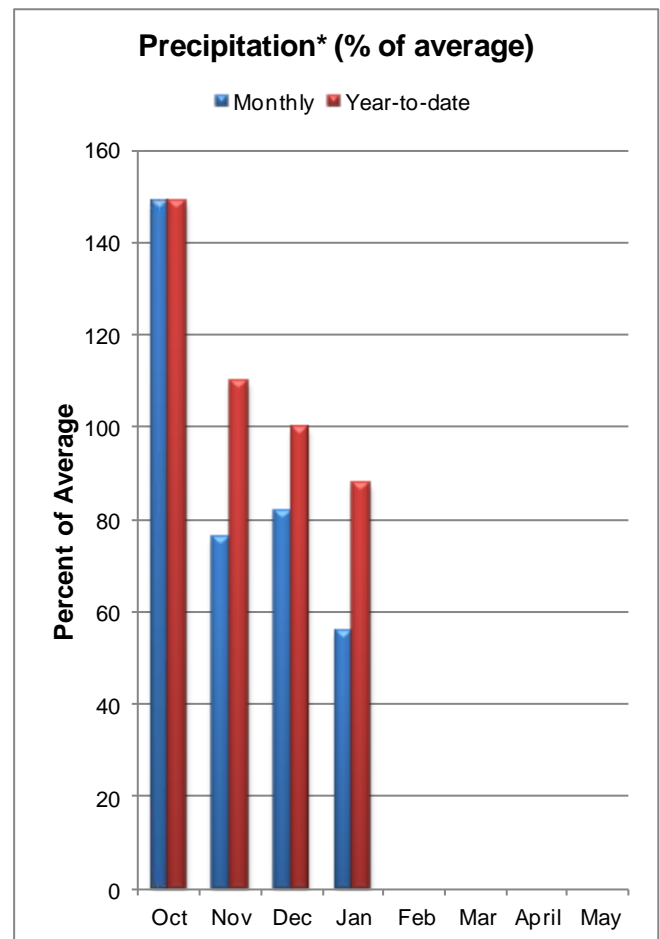
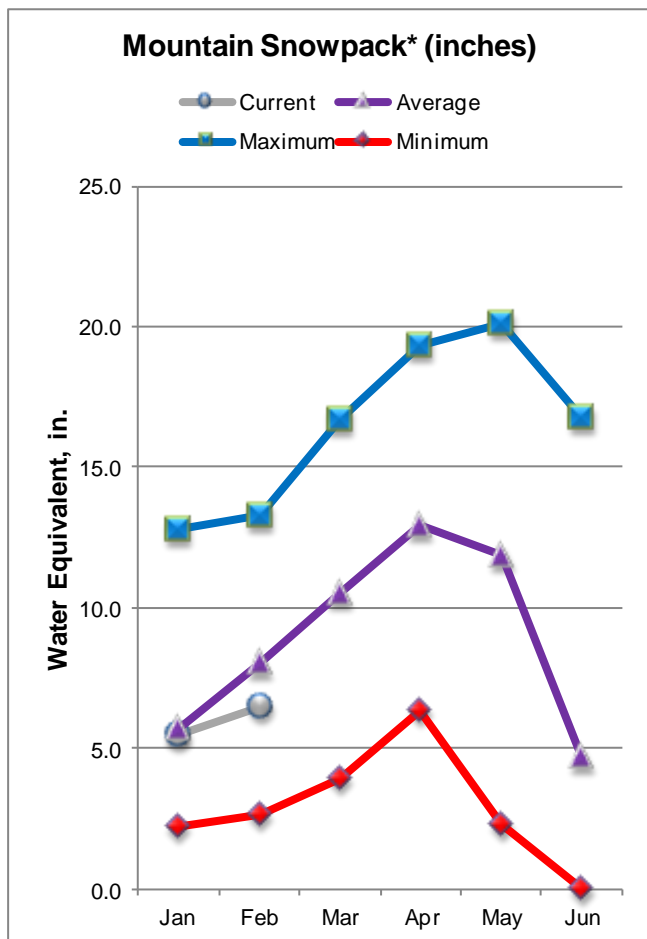
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# ARKANSAS RIVER BASIN

## as of February 1, 2012



\*Based on selected stations

Snowpack measurements in the Arkansas River basin were 81 percent of average as of February 1. The Upper Arkansas basin is the only sub basin recording below average conditions at 71 percent. This is marginally better than January 1 readings which were 66 percent of average. The Cucharas and Huerfano basins reported 103 percent of average on February 1, which is a downward trend from 122 percent of average reported on January 1. The Purgatoire basin is following a similar downward trend, decreasing significantly from the January 1 snowpack report of 141 percent to 116 percent of average on February 1. The basin's precipitation totals are reflecting typical La Nina conditions. Year to date precipitation was 88 percent of average as of February 1, but monthly precipitation is notably below average with January precipitation totals at 56 percent of average. The current levels of the 13 reservoirs reporting within the Arkansas River basin were at 94 percent of average at the end of January. The reservoirs are currently holding 514,000 acre-feet of water, which is 30 percent of capacity. The Arkansas River at Salida is expected to flow at 77 percent of average this spring and summer and the Arkansas River at Pueblo is expected to reach 71 percent of average. The Huerfano, Cucharas and Purgatoire Rivers are forecast to have flows between April and July that will range from 82 to 85 percent of average. Chalk Creek near Nathrop is forecast to reach 74 percent of average and Grape Creek near Westcliffe is expected to flow at 76 percent of average from April - July.

ARKANSAS RIVER BASIN  
Streamflow Forecasts - February 1, 2012

		<<===== Drier =====		Future Conditions =====		Wetter =====>>		
Forecast Point	Forecast Period	=====		Chance Of Exceeding *		=====		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Chalk Ck nr Nathrop	APR-JUL	8.4	13.2	17.1	74	22	29	23
	APR-SEP	10.1	15.6	20	74	25	33	27
Arkansas R at Salida (2)	APR-JUL	131	168	195	77	225	270	255
	APR-SEP	161	205	240	77	275	335	310
Grape Ck nr Westcliffe	APR-JUL	1.8	6.9	12.2	76	19.0	32	16.1
	APR-SEP	3.6	9.4	14.8	76	21	33	19.6
Arkansas R ab Pueblo (2)	APR-JUL	149	220	275	71	335	440	385
	APR-SEP	200	285	350	72	420	540	485
Huerfano R nr Redwing	APR-JUL	5.5	8.2	10.3	84	12.7	16.6	12.3
	APR-SEP	7.3	10.5	13.0	84	15.8	20	15.5
Cucharas R nr La Veta	APR-JUL	3.5	6.8	9.6	85	12.9	18.7	11.3
	APR-SEP	4.4	8.0	11.0	85	14.5	21	13.0
Purgatoire R at Trinidad (2)	MAR-JUL	8.9	19.0	28	82	39	58	34
	APR-SEP	12.4	25	36	82	49	72	44

ARKANSAS RIVER BASIN Reservoir Storage (1000 AF) - End of January					ARKANSAS RIVER BASIN Watershed Snowpack Analysis - February 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of =====	
		This Year	Last Year	Avg			Last Yr	Average
ADOBE	62.0	34.3	38.8	31.1	UPPER ARKANSAS BASIN	10	57	71
CLEAR CREEK	11.4	7.3	7.4	6.4	CUCHARAS & HUERFANO RIVER	4	169	103
CUCHARAS RESERVOIR	40.0	0.1	0.1	4.8	PURGATOIRE RIVER BASIN	2	179	117
GREAT PLAINS	150.0	0.0	0.0	35.2	TOTAL ARKANSAS RIVER BASI	15	76	81
HOLBROOK	7.0	2.3	0.9	3.9				
HORSE CREEK	27.0	27.0	0.0	12.2				
JOHN MARTIN	616.0	31.8	50.5	120.9				
LAKE HENRY	8.0	6.8	6.1	4.1				
MEREDITH	42.0	29.9	30.1	16.2				
PUEBLO	354.0	216.3	225.1	158.3				
TRINIDAD	167.0	15.4	17.9	25.3				
TURQUOISE	127.0	90.1	65.9	82.7				
TWIN LAKES	86.0	52.8	52.6	44.8				

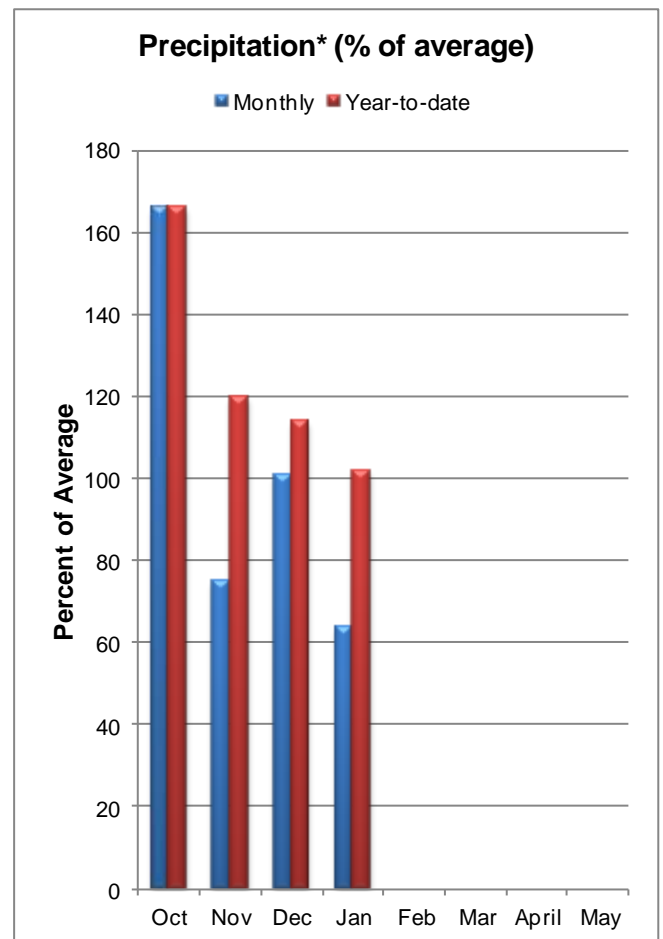
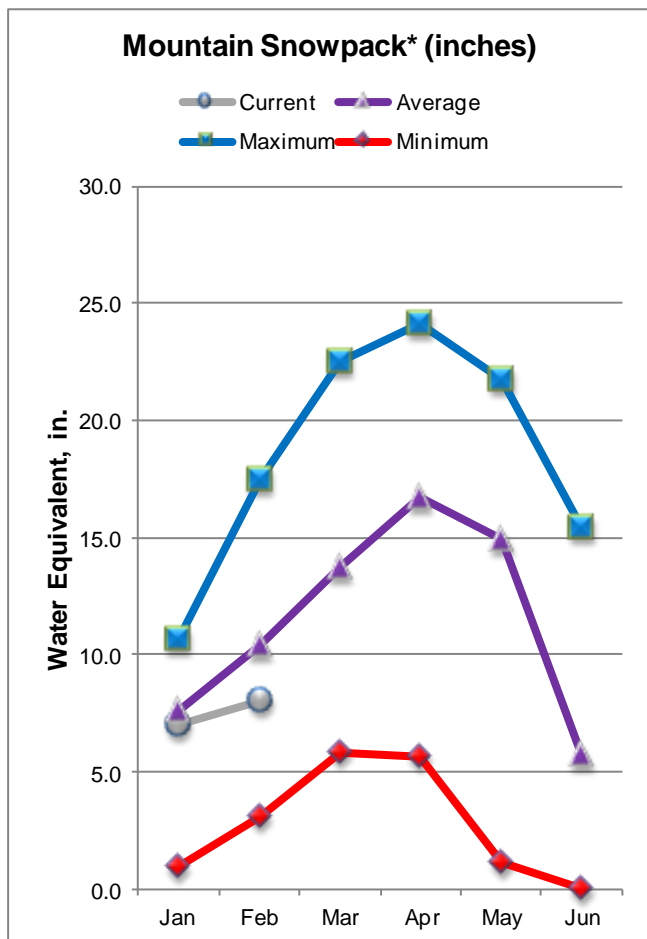
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# UPPER RIO GRANDE RIVER BASIN as of February 1, 2012



\*Based on selected stations

The Upper Rio Grande basin's snowpack was measured at 77 percent of average as of February 1. Variations in the snowpack within the basin range from 85 percent of average in the Culebra and Trinchera Creek sub basin to 65 percent in the Alamosa Creek sub basin. As of February 1 the Upper Rio Grande basin's year to date precipitation was 102 percent of average. This is the only basin in the state reporting above average precipitation for the water year. Precipitation totals are weighted heavily by above average precipitation recorded early in the water year. The basin is experiencing the influence of a return to La Nina weather patterns with monthly precipitation for January recorded at just 64 percent of average. Currently April - July streamflow forecasts are calling for the Rio Grande River to flow at 88 percent of average at the gage at Thirty Mile Bridge. April - September forecasts for the northeastern Rio Grande River in Colorado predict Ute Creek to flow at 74 percent of average while Trinchera Creek above Turners Ranch and Culebra Creek at San Luis will be 83 percent of average. As of the end of January the six reservoirs reported on in the Rio Grande basin are storing 58, 000 acre-feet of water. This combined storage is just 66 percent of average. Below average reservoir storage in this basin has persisted throughout the water year.

UPPER RIO GRANDE BASIN  
Streamflow Forecasts - February 1, 2012

		<<===== Drier ===== Future Conditions ===== Wetter =====>>						
Forecast Point	Forecast Period	Chance Of Exceeding *						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1006AF)	
Rio Grande at Thirty Mile Bridge (2)	APR-SEP	82	104	120	88	137	165	136
	APR-JUL	73	91	104	88	119	143	118
Rio Grande at Wagon Wheel Gap (2)	APR-SEP	200	255	300	87	345	420	345
SF Rio Grande at South Fork (2)	APR-SEP	78	99	115	87	133	163	132
Rio Grande nr Del Norte (2)	APR-SEP	310	395	460	87	535	655	531
Saguache Ck nr Saguache (2)	APR-SEP	13.8	21	26	79	32	42	33
Alamosa Ck ab Terrace Reservoir	APR-SEP	38	49	58	83	68	84	70
La Jara Ck nr Capulin	MAR-JUL	3.8	5.7	7.3	84	9.1	12.4	8.7
Trinchera Ck ab Turners Ranch	APR-SEP	6.3	8.4	10.0	83	11.7	14.5	12.0
Sangre de Cristo Ck (2)	APR-SEP	1.8	4.5	7.0	80	10.1	15.7	8.8
Ute Creek	APR-SEP	3.5	6.5	9.0	74	12.0	17.0	12.2
Platoro Reservoir Inflow	APR-JUL	37	45	52	81	59	71	64
	APR-SEP	41	51	58	82	66	79	71
Conejos R nr Mogote (2)	APR-SEP	111	141	165	83	191	235	200
San Antonio R at Ortiz	APR-SEP	4.7	7.5	10.0	61	12.9	18.2	16.4
Los Pinos R nr Ortiz	APR-SEP	34	46	55	74	66	84	74
Culebra Ck at San Luis (2)	APR-SEP	8.0	13.8	19.0	83	25	37	23
Costilla Reservoir Inflow	MAR-JUL	4.6	7.0	9.0	85	11.4	15.6	10.6
Costilla Ck nr Costilla (2)	MAR-JUL	10.5	16.7	22	85	28	40	26

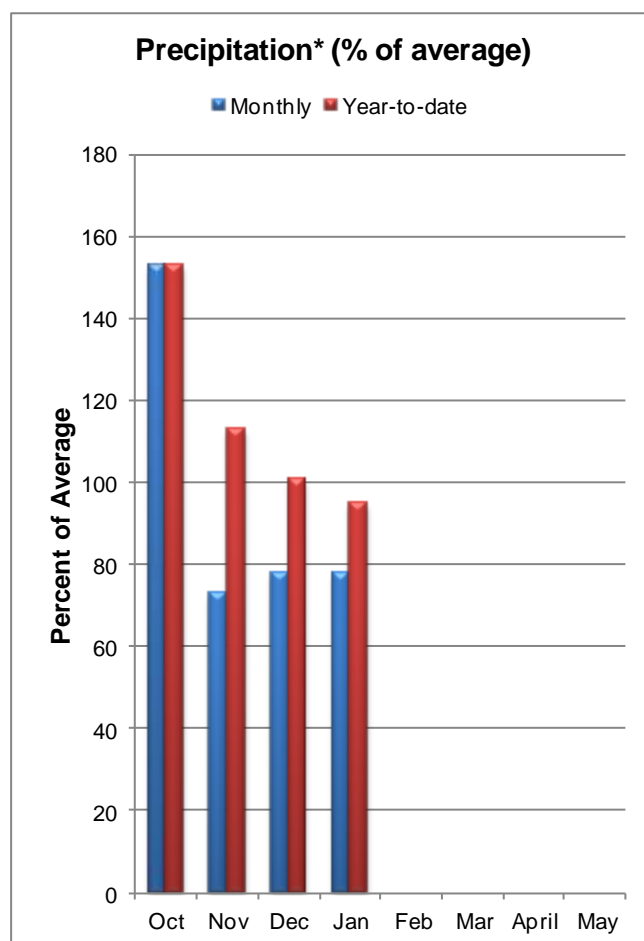
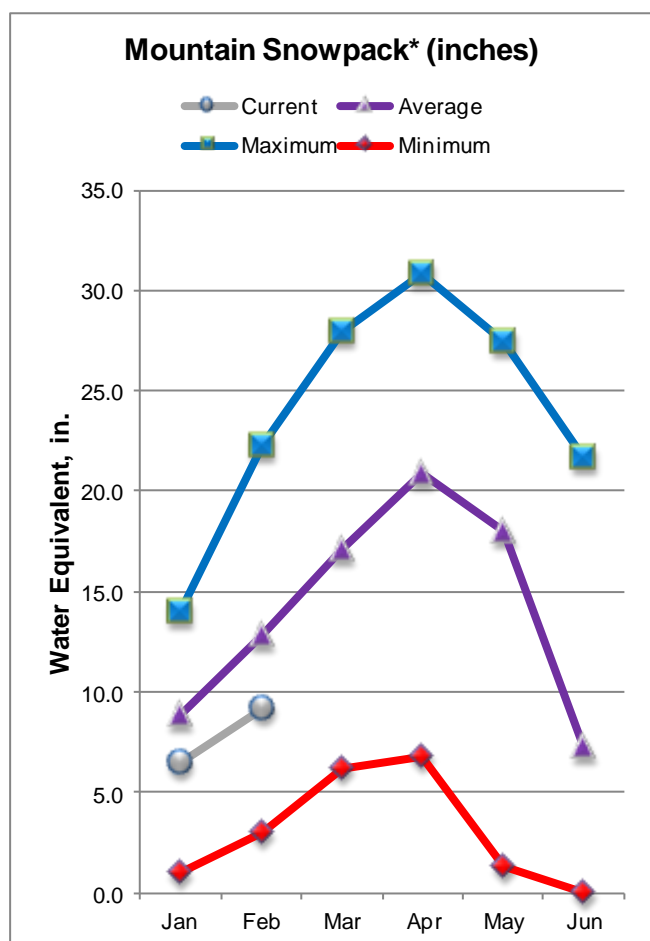
UPPER RIO GRANDE BASIN Reservoir Storage (1000 AF) - End of January					UPPER RIO GRANDE BASIN Watershed Snowpack Analysis - February 1, 2012			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CONTINENTAL	27.0	4.0	4.4	5.8	ALAMOSA CREEK BASIN	2	104	65
PLATORO	60.0	15.2	21.6	24.7	CONEJOS & RIO SAN ANTONIO	4	80	70
RIO GRANDE	51.0	17.2	16.9	16.5	CULEBRA & TRINCHERA CREEK	5	133	85
SANCHEZ	103.0	8.1	16.5	24.1	UPPER RIO GRANDE BASIN	11	87	76
SANTA MARIA	45.0	8.0	6.3	10.5	TOTAL UPPER RIO GRANDE BA	22	96	77
TERRACE	18.0	5.0	3.6	6.1				

\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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# SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN RIVER BASINS as of February 1, 2012



\*Based on selected stations

The return to La Nina conditions did not impact the San Miguel, Dolores, Animas and San Juan basins as much as the other southern Colorado basins. These basins also benefited from the snowfall delivered to western Colorado in mid January although it was not enough to boost the snowpack as significantly. The snowpack was reported to be at 73 percent of average on February 1. This is the same basin wide snowpack percentage reported last month. Overall snow accumulation in these basins continues to track below the long term average. Sub-basin snowpack's are all below average as well, ranging from 70 percent of average in the Dolores River basin to 77 percent of average in the San Juan (the only sub-basin to show a drop in percentage from 87 percent of average last month) and San Miguel River basins.

Total precipitation for the water year dropped 6 percentage points to 95 percent of average on February 1. This is a result of three consecutive months of below average precipitation in the basins. Reservoir storage reported at the end of January was at 105 percent of average. With 402,000 acre-feet stored in the 6 reservoirs contributing to this report, total storage is at 102 percent of last year's volumes. Streamflow volumes for April - July are expected to be below normal across the basins. Volumes should range from 70 percent of average for McPhee Reservoir Inflow, Cone Reservoir Inlet, and the Mancos River near Mancos to 85 percent of average for Vallecito Reservoir Inflow.

SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN RIVER BASINS  
Streamflow Forecasts - February 1, 2012

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						
		Chance Of Exceeding *					30-Yr Avg. (1000AF)	
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Dolores R at Dolores	APR-JUL	110	154	190	72	230	300	265
McPhee Reservoir Inflow (2)	APR-JUL	124	180	225	70	275	355	320
San Miguel R nr Placerville	APR-JUL	60	80	95	72	112	141	132
Gurley Reservoir Inlet	APR-JUL	9.4	12.2	14.5	79	17.0	21	18.3
Cone Reservoir Inlet	APR-JUL	0.7	1.5	2.3	70	3.4	5.4	3.3
Lilylands Reservoir Inlet	APR-JUL	1.3	1.8	2.2	75	2.7	3.5	2.9
Rio Blanco at Blanco Diversion (2)	APR-JUL	22	34	43	81	52	64	53
Navajo R at Oso Diversion (2)	APR-JUL	35	46	55	80	65	82	69
San Juan R nr Carracas (2)	APR-JUL	176	265	325	80	385	475	405
Piedra R nr Arboles	APR-JUL	112	152	180	78	210	250	230
Vallecito Reservoir Inflow (2)	APR-JUL	119	152	175	85	198	230	205
Navajo Reservoir Inflow (2)	APR-JUL	360	520	630	80	740	900	785
Animas R at Durango	APR-JUL	230	300	350	80	400	470	440
Lemon Reservoir Inflow (2)	APR-JUL	30	40	47	81	55	68	58
La Plata R at Hesperus	APR-JUL	12.0	16.4	20	80	24	31	25
Mancos River Near Mancos	APR-JUL	10.4	17.9	23	70	28	36	33

SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN RIVER BASINS  
Reservoir Storage (1000 AF) - End of January

SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN RIVER BASINS  
Watershed Snowpack Analysis - February 1, 2012

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
GROUNDHOG	22.0	4.8	13.2	12.0	ANIMAS RIVER BASIN	9	63	70
JACKSON GULCH	10.0	3.7	5.2	4.6	DOLORES RIVER BASIN	7	70	70
LEMON	40.0	14.2	14.5	20.2	SAN MIGUEL RIVER BASIN	5	75	74
MCPHEE	381.0	287.9	272.9	274.4	SAN JUAN RIVER BASIN	4	72	77
NARRAGUINNEP	19.0	14.8	16.6	12.7	TOTAL SAN MIGUEL, DOLORES	24	68	72
VALLECITO	126.0	76.4	69.9	59.4	AN JUAN RIVER BASINS			

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In addition to the basin outlook reports, water supply forecast information for the Western United States is available from the Natural Resources Conservation Service and the National Weather Service monthly, January through May. The information may be obtained from the Natural Resources Conservation Service web page at <http://www.wcc.mrcs.usda.gov/wsf/westwide.html>

*Issued by*

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# **Colorado**

## **Basin Outlook Report**

Natural Resources Conservation Service  
Lakewood, CO